CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5112

August 29, 2003

To: Commissioner James A. Boyd, Presiding Member
Commissioner Robert Pernell, Associate Member

Subject: **MODESTO IRRIGATION DIST. ELECTRIC GENERATION STATION (MEGS)-RIPON SMALL POWER PLANT EXEMPTION (03-SPPE-1)**

FINAL INITIAL STUDY ERRATA

Attached are Errata to the Commission Staff's Final Initial Study issued on August 22, 2003. Supplemental Testimony in the areas of Noise and Energy Resources is ALSO included.

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Energy Facility Siting Project Manager

POS

FINAL INITIAL STUDY ERRATA – MODESTO IRRIGATION DISTRICT ELECTRIC GENERATION STATION (03-SPPE-01)

GEOLOGY, MINERAL RESOURCES, AND PALEONTOLOGY

Introduction, page 7-1, Last sentence, delete the phrase “with the inclusion of conditions of exemption.”

Liquefaction, Subsidence, Hydrocompaction, and Expansive Soils, page7-3, first paragraph, last two sentences, replace references to **GEO-1**, with CBSC (2001).

PUBLIC HEALTH

Proposed Condition of Exemption, page 12-14, **Verification**, replace sentence with the following: At least 30 days prior to the commencement of cooling tower operations, the applicant shall provide the Biocide Use, Biofilm Prevention, and Legionella Control Program to the CPM for review and approval.

TRANSMISSION LINE SAFETY & NUISANCE

Conclusions, page 15-5, delete second sentence. ~~The following conditions of exemption are recommended to ensure implementation of the necessary design and operational measures.~~

WASTE MANAGEMENT

Introduction, page 18-1, delete last sentence. ~~The section concludes with staff’s proposed conditions of exemption.~~

NOISE AND VIBRATION

Supplementary Testimony, see attached section.

ENERGY RESOURCES

Supplementary Testimony, see attached section.

NOISE AND VIBRATION

Supplemental Testimony of Steve Baker

INTRODUCTION

In preparing its application, Modesto Irrigation District (MID) measured ambient noise levels at four locations around the project site. One location, labeled Monitoring Location A (ML A), represents the residential receptors nearest the proposed project (MID 2003a, SPPE Table 8.5-5; Figure 8.5-1). Subsequently, MID identified another group of residences, located only 30 feet farther from the project site than Monitoring Location A (MID 2003ss, Figure 8.5-1R). When MID modeled expected noise emissions from the project, they modeled not only at ML A, but also at this second residential neighborhood, labeled Monitoring Location R (ML R) (MID 2003a, AFE Tables 8.5-8 through 8.5-11; Figure 8.5-1).

In Energy Commission staff's analysis, noise impacts were evaluated at ML A and at ML R. In order to determine whether impacts would be significant, staff compares the increase in noise levels due to the project's noise emissions. Staff determined that noise would increase by 10 dBA at ML A, resulting in an insignificant adverse impact. Staff then assumed that the ambient noise at ML R is similar to that at ML A; the increase in noise at ML R would thus be less than 10 dBA, and therefore constitute an insignificant adverse impact (Final Initial Study, pp. 11-10 to 11-11).

Comments by Mrs. Pamela Kaefer, a resident who lives near ML R, prompted staff to look more closely at the assumption that ambient noise levels at ML R are similar to those at ML A. Staff commissioned a 25-hour ambient noise survey, in which a noise monitoring device was set up in Mrs. Kaefer's back yard (B-BA 2003). Results of this study are presented here (B-BA 2003).

In addition to Mrs. Kaefer's concerns, staff responds here to the applicant's Testimony on noise (MID 2003ss).

25-HOUR NOISE MONITORING STUDY AT MONITORING LOCATION R

Brown-Buntin Associates installed a noise monitoring device in the back yard of the Kaefer residence at 646 S. Locust Avenue at 11:30 a.m. on August 25, 2003, and retrieved the device at 10:00 a.m. on August 27, 2003. This yielded data for a period of 45 hours (B-BA 2003). Although there was thunderstorm activity on the night of August 25th, which would tend to skew noise readings, the data from the night of August 26th were untainted by inclement weather. The results of this study are summarized in **Table 1**, and in **Figures 2**, **3** and **4**, below.

POWER PLANT OPERATION

In order to evaluate noise impacts, Energy Commission staff typically evaluates the background (L_{90}) noise level during the four quietest consecutive hours of the night. This is the most sensitive time, as most people are sleeping. **Table 1** shows that the background noise levels were quietest during the hours from 10:00 p.m. to 2:00 a.m. on

the night of August 26th – 27th. The average background level for these four hours is 53.6 dBA,[1] twice as loud as the 47 dBA[2] ambient background level at ML A (Final Initial Study, **NOISE: Table 4**),. Adding the applicant's projected power plant noise at this location of 55 dBA (MID 2003a, AFE Tables 8.5-8 through 8.5-11) yields a cumulative level of approximately 58 dBA. This represents an increase over background levels of 4 dBA; see **NOISE: Table 4 Revised**, below. Staff typically considers such an increase as an insignificant adverse impact.

NOISE: Table 4 Revised
Summary of Predicted Operational Noise Levels

Measurement Sites	Noise Levels, dBA				L_{dn}, dB**
	Ambient*	Project**	Cumulative	Change	
A	47	57	57	+10	63
B	50	64	64	+14	70
R	54	55	58	+ 4	

* Staff estimate, average background noise, monitoring location A, four quietest nighttime hours.
** Applicant's estimate (MID 2003a, AFE Table 8.5-8).

It is thus seen that staff's assumptions regarding noise impacts at ML R due to power plant operation were valid.

POWER PLANT CONSTRUCTION

In its Testimony on noise (MID 2003ss, p. 72), the applicant has corrected an error in the information provided in the application. The application predicted construction noise impacts at ML A ranging from 46 to 57 dBA (MID 2003a, AFE Table 8.5-13). These figures were based on the assumption that the distance from the project site to ML A is 1,900 feet. As shown in the applicant's recent Testimony (MID 2003ss, p. 72) and as analyzed by staff (Final Initial Study, p. 11-4 and pp. 11-9 to 11-11), the actual distance to ML A is approximately 1,045 feet. The applicant has re-modeled construction noise at ML A; the projected figures now range from 52 to 63 dBA (MID 2003ss, p. 72 and Table Noise-7).

Local LORS do not set a limit on the magnitude of construction noise, but merely limit the hours of the day during which noisy construction work may occur (Final Initial Study, pp. 11-2 to 11-3). In order to analyze noise impacts from construction, Energy Commission staff typically compares construction noise to the ambient L_{eq} level. This is an appropriate comparison because construction noise is constantly varying, similar to the majority of noises that make up the ambient L_{eq} level.

The application does not report L_{eq} figures for ML A. However, it does report L_{dn} at ML A as 58 dBA (MID 2003a, AFE Table 8.5-6). From staff's ambient noise survey (B-BA 2003, Figures 2 through 4), it is seen that the ambient noise regime at ML R is relatively constant, with L_{eq} ranging 2 to 3 dBA higher than L_{90}. Assuming the ambient noise regime at ML A is as constant as at ML R, one can further assume that L_{dn} is an effective proxy for L_{eq}. (For any constant noise, L_{dn} is 6 dBA greater than L_{eq}; the more

[1] Logarithmic average.
[2] Please see NOISE APPENDIX A in the staff FIS.

constant the actual noise, the more valid this rule.) Taking the value of L_{dn} at ML A of 58 dBA and subtracting 6 dBA yields an L_{eq} of 52 dBA. When the projected construction noise levels of 52 to 63 dBA are added to this, the cumulative noise level ranges from 55 to 63 dBA, or an increase above L_{eq} levels of 3 to 11 dBA. This is unlikely to constitute a significant adverse impact on residents at ML A.

PROPOSED CHANGE TO NOISE-1

In its Testimony (MID 2003ss, pp. 72-73), the applicant asks that staff modify its proposed condition of exemption **NOISE-1** to allow measurement of actual power plant noise to be performed at a location nearer the plant than either of the residential neighborhoods at ML A and ML R. The plant noise can then be mathematically extrapolated to obtain noise levels at the residences. The applicant proposes added language to allow this.

Energy Commission staff agree to this change. Identical language has been used in similar conditions on other power plant projects in which residences are located near existing noise sources such that actual measurements at the residences are unlikely to yield valid results.

CONCLUSION

Results of the ambient noise survey commissioned by staff show that staff's original assumptions regarding noise impacts at the nearest residential receptor locations, ML A and ML R, were valid. Staff's analysis of the applicant's corrected construction noise levels shows that no significant adverse impacts will occur from construction noise. Staff agrees to the inclusion of the applicant's suggested language in proposed condition of exemption **NOISE-1** (See underlined portion of the condition).

PROPOSED CONDITION OF EXEMPTION

NOISE-1 The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that noise due to operation of the project will not exceed 57 dBA when measured at residential receivers at noise monitoring location A or 55 dBA when measured at residential receivers at noise monitoring location R, and that the noise due to plant operations will comply with the noise standards of the City of Ripon Noise Element.

No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. The production of pure tones during normal plant operation is not allowed.

Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey at monitoring locations A and R. <u>The measurement of power plant noise for purposes of demonstrating compliance with this Condition of Exemption may alternatively be made at a location, acceptable to the CPM and City of Ripon, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant</u>

noise contribution at the nearest residence. However, notwithstanding the use of this alternative method for determining the noise level, the character of the plant noise shall be evaluated at the nearest residence to determine the presence of pure tones or other dominant sources of plant noise. The survey during power plant operations shall also include measurement of one-third octave band sound pressure levels to ensure that no new pure-tone noise components have been introduced.

If the results from the noise survey indicate that the noise produced by the project exceeds 57 dBA at location A or 55 dBA at location R for any given 4-hour period during the 25-hour period, or that the noise standards of the City of Ripon Noise Element have been exceeded, mitigation measures shall be implemented to reduce noise to a level of compliance with these limits. If any pure tones are present, mitigation measures shall be implemented to eliminate the pure tones.

Verification: Within 15 days after completing the survey, the project owner shall submit a summary report of the survey to the City of Ripon Planning Department, and to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures. Within 15 days of completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described above and showing compliance with this condition.

NOISE-2 Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints. The project owner or authorized agent shall:

- Use the Noise Complaint Resolution Form (below), or functionally equivalent procedure acceptable to the City of Ripon, to document and respond to each noise complaint;
- Attempt to contact the person(s) making the noise complaint within 24 hours;
- Conduct an investigation to determine the source of noise related to the complaint;
- If the noise is project related, take all feasible measures to reduce the noise at its source; and
- Submit a report documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: Within five days of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, with the City of Ripon, documenting the resolution of the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a three-day period, the project owner shall submit an updated Noise Complaint Resolution Form when the mitigation is implemented.

REFERENCES

BB-A (Brown-Buntin Associates, Inc.) 2003. Noise Level Monitoring Report at Kaefer Residence, August 27, 2003.

MID (Modesto Irrigation District). 2003a. Application for Small Power Plant Exemption, MID Electric Generation Station (03-SPPE-1). Submitted to the California Energy Commission, April 21, 2003.

MID (Modesto Irrigation District). 2003ss. Testimony for the Small Power Plant Exemption for the Modesto Irrigation District Electric Generation Station 03-SPPE-01. Submitted to the California Energy Commission, August 27, 2003.

TABLE 1 – Hourly Interval Data
646 Locust Street, Ripon, CA

Date	Time	Leq	Lmax	L(2)	L(8)	L(10)	L(25)	L(50)	L(90)
25Aug 03	12:00:00	55.8	61.4	58	57.5	57.3	56.5	55.6	54.2
25Aug 03	13:00:00	57.1	63.4	58.9	58.1	58	57.6	57	56.1
25Aug 03	14:00:00	58.5	72.3	61.8	59.8	59.7	58.9	58.3	57
25Aug 03	15:00:00	58.1	71.2	60.4	59	58.9	58.1	57.6	56.6
25Aug 03	16:00:00	59.3	70.2	61.9	61.2	61	60.4	58.7	56.4
25Aug 03	17:00:00	60.5	66.2	61.9	61.7	61.6	60.9	60.4	59.2
25Aug 03	18:00:00	61.6	66.6	62.7	62	61.9	61.8	61.5	61
25Aug 03	19:00:00	62	64.9	63	62.9	62.9	62.6	62.2	60.8
25Aug 03	20:00:00	61.1	65.7	63.5	62.9	62.8	62.3	60.8	56.8
25Aug 03	21:00:00	61.6	63.3	63	62.8	62.8	62.5	61.7	60
25Aug 03	22:00:00	61.9	65.9	63.4	62.9	62.9	62.5	62	60.4
25Aug 03	23:00:00	60.5	65.4	63.7	63	62.8	61.9	60.4	57.2
26Aug 03	0:00:00	60.6	68.4	62.9	62.6	62.4	61.8	60.6	58
26Aug 03	1:00:00	59.5	64.4	62.8	62.2	62	61.4	58	57.2
26Aug 03	2:00:00	59.4	62.5	61.9	61.5	61.4	60.7	60	56
26Aug 03	3:00:00	60.2	64	62.8	62.3	62.1	61.6	60.7	57.1
26Aug 03	4:00:00	60.9	68.3	63.9	63.4	63.2	62.6	59.8	57
26Aug 03	5:00:00	57.1	64.6	62	59.5	59.3	57.5	56.4	55.1
26Aug 03	6:00:00	58.5	65.3	62.6	61	60.7	59.4	57.7	55.7
26Aug 03	7:00:00	56.6	64.8	60.8	58.9	58.7	57.5	55.8	53.5
26Aug 03	8:00:00	57.2	68.3	61	60	59.9	59.1	55.4	53.2
26Aug 03	9:00:00	56.8	67.5	60.6	59.6	59.5	57.9	56	53.1
26Aug 03	10:00:00	54.5	67.1	58.4	57.1	56.8	55.3	53.9	51.3
26Aug 03	11:00:00	54.2	63.6	57.7	56	55.8	54.7	53.8	52.2
26Aug 03	12:00:00	55.8	65.3	59.8	58	57.8	56.5	55.2	53.3
26Aug 03	13:00:00	56.8	64.4	59.8	58.7	58.5	57.6	56.6	54.8
26Aug 03	14:00:00	54.8	64.8	58.2	56.5	56.2	55.2	54.4	53.1
26Aug 03	15:00:00	56.5	71.8	60.7	58.4	57.9	56.8	55.9	54.1
26Aug 03	16:00:00	59.1	79	61.6	59.8	59.6	58.9	58.5	54.4
26Aug 03	17:00:00	58.9	64.2	60	59.8	59.7	59.3	58.8	58.2
26Aug 03	18:00:00	60.3	79.2	66.2	59.8	59.7	59	58.6	58.1
26Aug 03	19:00:00	58.4	62.7	59.7	59	58.9	58.8	58.5	57.8
26Aug 03	20:00:00	57.4	66.2	59	58.8	58.8	58.4	57.6	55.3
26Aug 03	21:00:00	57.6	64.6	59.8	58.9	58.9	58.3	57.5	55.3
26Aug 03	22:00:00	56.3	65	58.9	58.4	58.3	57.6	55.9	53.5
26Aug 03	23:00:00	56.1	62.7	58.9	58	57.9	57.5	56	52.6
27Aug 03	0:00:00	56.9	67	59	58.7	58.7	58.1	57.3	54.1
27Aug 03	1:00:00	56.6	65.6	59.3	58.7	58.7	58	55.7	54.4
27Aug 03	2:00:00	57	62	59.2	58.9	58.8	58.4	56.4	54.6
27Aug 03	3:00:00	56.6	62.1	59.7	58.9	58.8	58.2	55.7	54.4
27Aug 03	4:00:00	57	61.2	59.6	58.9	58.8	58.4	55.9	55.1
27Aug 03	5:00:00	57.3	62.9	59.9	59.4	59.3	58.3	56.7	55.6
27Aug 03	6:00:00	57.1	71.1	59.9	59.3	59.1	57.5	56.6	55.4
27Aug 03	7:00:00	57.9	69.7	60.4	59.5	59.3	58.6	57.8	56.5
27Aug 03	8:00:00	55.1	65.1	58	56.9	56.8	56	55.1	52.4
27Aug 03	9:00:00	56.6	67.3	60.6	58.8	58.5	56.9	55.9	54.4

Figure #2: Measured Hourly Noise Levels

Site - 646 Locust Street, Ripon, California

August 25, 2003

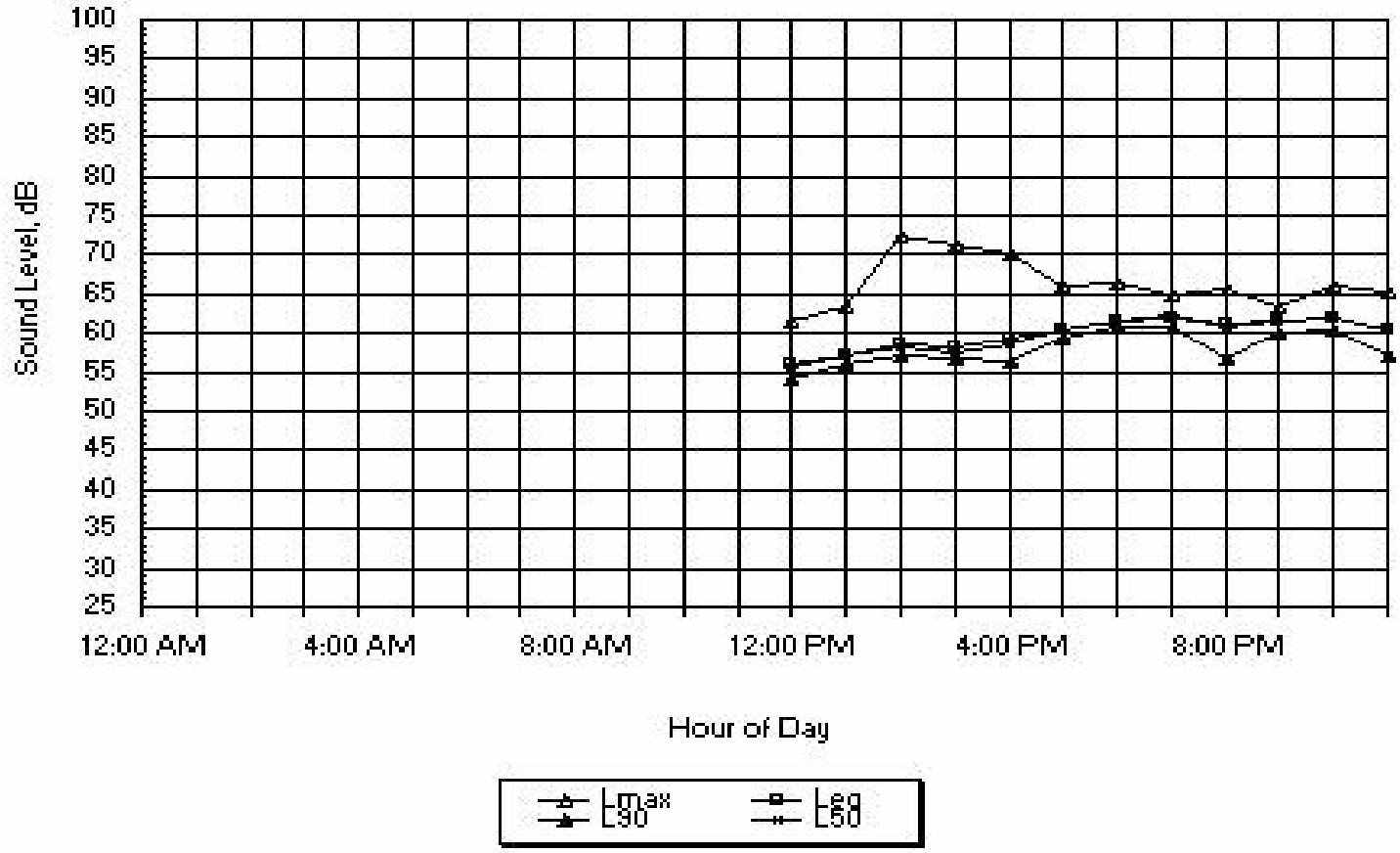
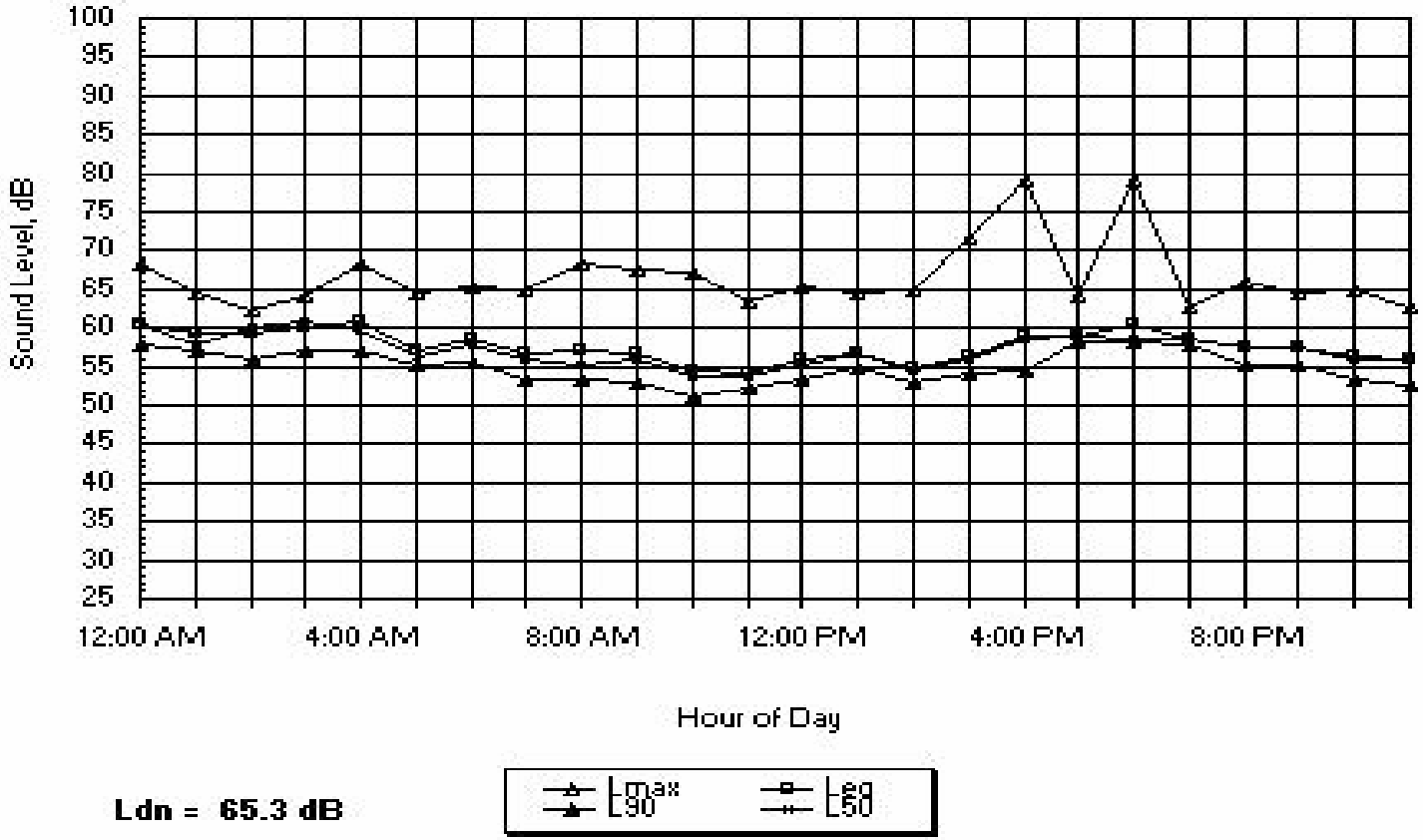


Figure #3: Measured Hourly Noise Levels

Site - 646 Locust Street, Ripon, California

August 26, 2003

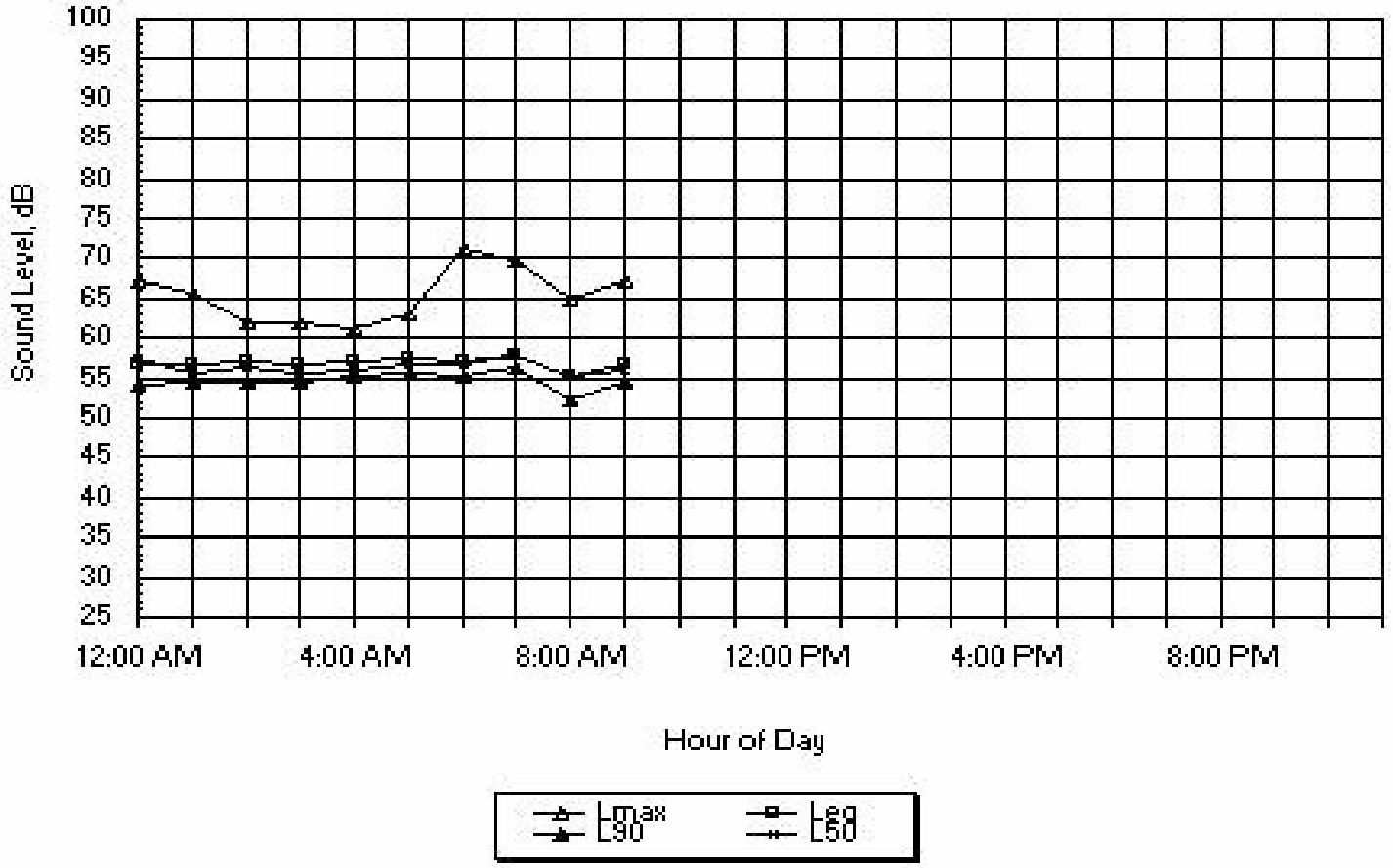


Ldn = 65.3 dB

Figure #4: Measured Hourly Noise Levels

Site - 646 Locust Street, Ripon, California

August 27, 2003



ENERGY RESOURCES

Supplemental Testimony of Shahab Khoshmashrab

INTRODUCTION

In its original Energy Resources testimony for the Modesto Irrigation District (MID) Electric Generation Station (MEGS) 95 MW (nominal) simple cycle power plant (MID 2003a, SPPE § 2.3), staff analyzed the proposed project on the basis that MEGS was to generate only peaking power at all times. MID, in its Informational Hearing statement (CEC 2003f), proposes to also generate baseload power as well as peaking power. According to the applicant, the MEGS will generate baseload power during a three month period every summer.

ANALYSIS OF IMPACTS

This supplemental testimony examines energy use by the MEGS during baseload as well as peak load operation to determine whether the project's consumption of energy will result in significant adverse impacts on energy resources, by analyzing the issue of inefficient and unnecessary consumption of energy.

As proposed, the MEGS would generate power as a peaking plant, except for three months every year in which it would generate baseload power. As compared to combined cycle configuration, simple cycle configuration, with its short start-up time and fast ramping capability, is well suited to providing peaking power. However, combined cycle power plants are more suitable for providing baseload power since they burn fuel more efficiently. Since the MEGS will be required to provide peaking power most of the time, and will only be required to run on baseload for a short time every year, and also because the project's energy consumption is insignificant compared to natural gas reserves available, staff agrees with the applicant that simple cycle configuration would best meet the project objectives.

CONCLUSIONS

While it will consume substantial amounts of energy, the MEGS, with its proposed simple cycle configuration, will produce both peaking and baseload power in an efficient manner. Staff therefore concludes that the MEGS will not create significant adverse impacts upon energy supplies or resources.

REFERENCES

MID (Modesto Irrigation District). 2003a. Application for Small Power Plant Exemption, MID Electrical Generating Station (03-SPPE-1). Submitted to the California Energy Commission, April 21, 2003.

CEC (California Energy Commission). 2003f. Transcript of the Informational Hearing, May 16, 2003, p. 37.